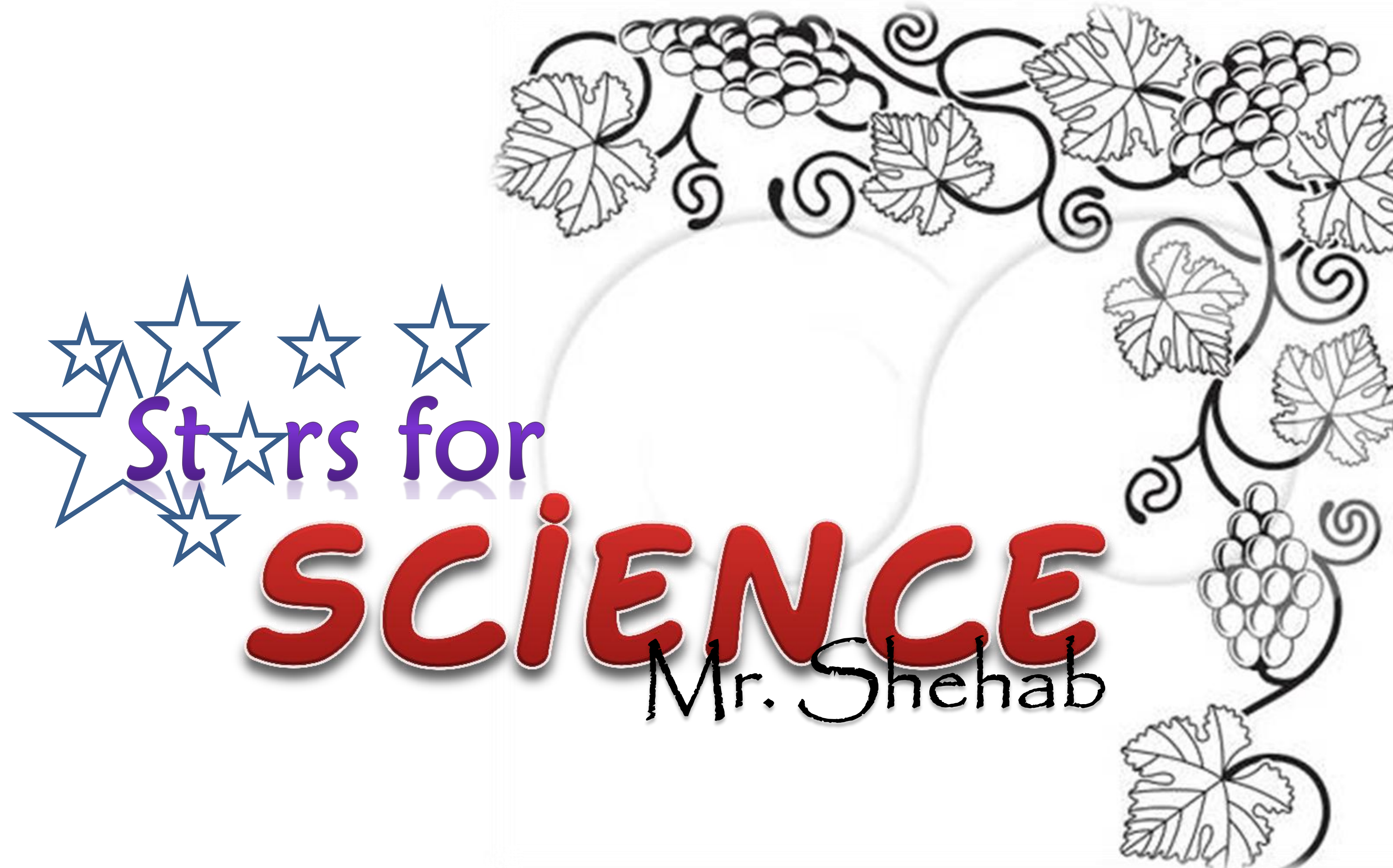


Primary 4

Prepared by:

Mr. Shehab

Name : ....

Grade : ....

Class : ....

Lesson 1 Measuring tools

Matter	It is anything that has a mass and a volume.

المادة هي كل ما له كتلة وحجم مثل : الباب والكتاب و الهواء والزيت .... إلخ

Mass	It is the amount of matter in an object.

كتلة الجسم هو مقدار ما يحتويه الجسم من مادة مثلا : كم كيلوجرام من الخشب موجود في الباب؟
يعطي لنا كتلة البابـ وتكون بالجرام أو الكيلوجرام أو الطن

Volume	It is the space that is occupied by a matter.

الحجم هو مقدار الحيز (الفراغ) الذي يشغله الجسم.

1. Complete:

a. Matter has (له) .... and ....

b. Everything that occupies a space and has a mass is called (يُسمي) ....

c. .... is the amount of matter that the object contains.

d. Oxygen gas occupies a space, so it has a ....

2. Choose the correct answer:

1. The space occupied by matter is known as (يعرف بــ/ يُسمي) ....

a. length b. volume c. mass d. (a) and (b)

2. Milk has ....

a. length b. volume c. mass d. (b) and (c)

3. Cheese has ....

a. volume only (فقط) b. length c. mass only d. mass and volume

4. .... is the amount of matter that the object contains.

a. Length b. Volume c. Mass d. Matter



Measuring tools:

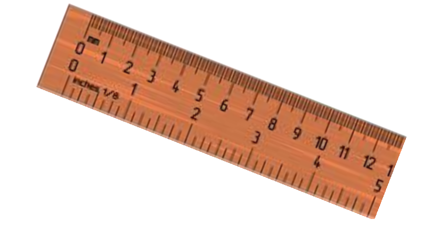
عندما نشتري قماش ، خشب ، ذهب ، فاكهة ، عصير ، بنزين .... إلخ

لكي نحدد مقدار ما اشتريناه فنحن نحتاج إلي أدوات قياس المناسبة لكل مادة .

measuring tools of length

أدوات قياس الطول

1. measuring ruler



2. Graduated tape



measuring units of length: *centimeter, meter, kilometer*

1 kilometer = 1000 meter

1 meter = 100 centimeter

measuring tools of mass

أدوات قياس الكتلة

1. Common balance



2. Sensitive balance



measuring units of mass: *gram, kilogram, ton*

1 ton = 1000 kilogram

1 kilogram = 1000 gram

1. Complete:

a. Common balance is used for measuring ……………………

b. Measuring tape is used for measuring ………………………

c. Meter is the unit of measuring …………………………

d. kilogram is a unit for measuring …………………………

e. Measuring ruler is used for measuring ………………………

2. Write the scientific term: أذكر المصطلح العلمي

a. Everything that occupies a space and has a mass. (………………………)

b. A **tool** used to measure the length of an object. (………………………)

c. The amount of matter that object contains. (………………………)

d. A **tool** that measures small masses. (………………………)

e. It is the space that is occupied by the object. (………………………)

كبيرة جدا

f. **Unit** of measuring very large masses. (………………………)

g. It is everything that has a volume and mass. (………………………)

3. Choose the correct answer:

تقدر/ تقيس

1. ………… is one of the measuring **units** that estimate the **length** of any object

a. kilogram b. Centimeter c. Liter d. ton

2. Five meters equal ------------------ cm

a. 5 b. 50 c. 500 d. 5000

3. We measure jewellery by using ………………

a. sensitive balance b. common balance c. measuring ruler

Volume

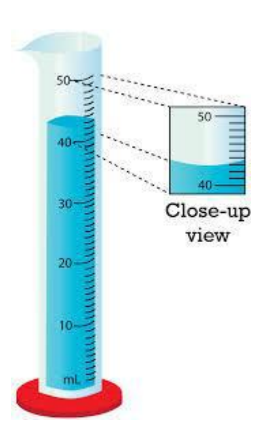
measuring tools





- **Liquids** is measured by **graduated cylinder**.

السوائل كالماء والعصير نقيسه بإستخدام المخبار المدرج.



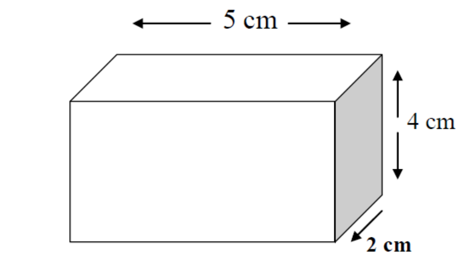
سائل

measuring units of liquid volumes:

liter, milliliter

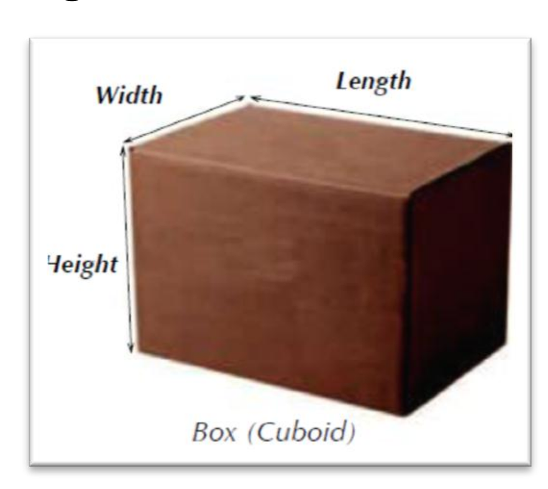
1 liter = 1000 milliliter

- **Volume of cuboid = Length × Width × Height**



Volume of box = ……… × ……… × ………

= …………… cm^3



Box (Cuboid)

صلب

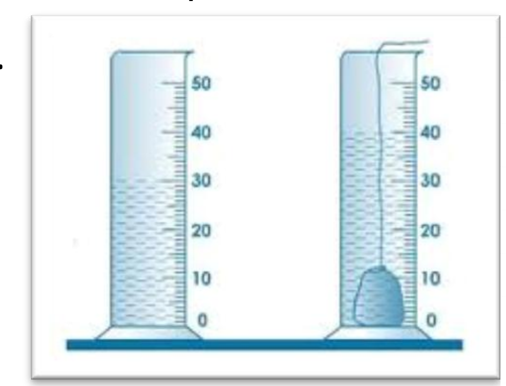
measuring units of solid volumes:

Cubic centimeter (cm^3.), Cubic meter (m^3.)

1 liter = 1000 cm^3

- Volume of irregular solids. حجم الأجسام الصلبة غير المنتظمة

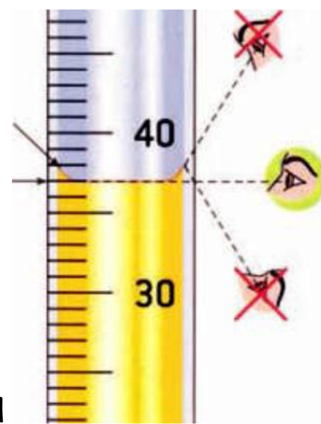
How to measure the volume of a stone? كيف تقيس حجم حجر (صخرة) ؟



1. Put an amount of water in a graduated cylinder.
2. Record the volume of water. سجل
3. Put the stone in the cylinder.
4. Record the new volume of water

The volume of stone = $V_2 - V_1$

Notes:



a. On reading the measuring cylinder, the vision must be in horizontal position at the bottom point of water level.

عند قراءة التدريج في المخبار المدرج يجب أن يكون خط النظر أفقيا عند أسفل نقطة من سطح الماء

b. The stone must not dissolved in water.
الحجر يجب أن يكون لا يذوب في الماء

c. You can use oil instead of water in measuring the volume of a solid that dissolved in water. يمكن استخدام الزيت بدلا من الماء في حالة تعيين حجم جسم صلب يذوب في الماء

Equal volumes of different materials have different masses

الحجوم المتساوية من المواد المختلفة لها كتل مختلفة

Equal volumes of same material have equal masses

الحجوم المتساوية من نفس المادة لها كتل متساوية

Give reason: أذكر السبب

a. Air is a matter.
because it has mas and volume.

b. The car has volume.
because it occupies a part of space.



1. Choose the correct answer:

1. A stone is put in a jar containing 30 cm^3 of water, water level raises up to 50 cm^3, so the volume of the stone equals…………

a. 20 cm^3 b. 30 cm^3 c. 50 cm^3 d. 80 cm^3

2. Your classmate placed a piece of iron is put into a 50 cm^3 beaker filled completely by water, so that a quantity of water volume 20 cm^3 is poured out the beaker. The volume of this piece equals………….

a. 20cm^3 b. 30cm^3 c. 50cm^3 d. 70cm^3

3. The volume of a solid material is measured by………………….

a. cm b. cm^2 c. m^3 d. meter

4. We can determine the volume of irregular shaped small stone that doesn't dissolve in water by using…………….

a. Glass beaker b. measuring cylinder c. graduated ruler d. common balance

5. A pupil placed four marbles of equal volume in 100cm^3 graduated cylinder containing water. The water level raised up to 120cm^3, what is the volume of each marble?

a. 30cm^3 b. 25cm^3 c. 20cm^3 d. 5cm^3

2. Complete:

1. Measuring units of volume ……………, ……………, …………. and ……………
2. ……………… is a tool used for measuring the volume of irregular solid bodies.
3. Cubic centimetre is the unit of measuring ……………….
4. Equal volumes of different materials have different ……………………
5. ………….is used to estimate Volume of Liquids.
6. Graduated cylinder is used for ……………………….

3. Calculate the volume of a cuboid whose length is 5 cm, its width 3 cm and it height equals 2 cm .

....

....

4. Amr has calculated the mass of four equal pieces in volume but from different materials and compared between the mass of each one, so that Amr wants to prove that the mass of equal volumes of different materials are ....

5. One of your classmates determines the mass of three pieces equal in volume then he found that they are equal in mass. Are these three pieces made up of the same material or from a different one? why?

....

....

....



Exercises

1. Write the scientific term:

1. Anything that occupies a space and has mass. (..........................)
2. The amount of the material that the object contains. (..........................)
3. It is the space that is occupied by the object. (..........................)
4. It is anything that has a volume and mass. (..........................)
5. Tool used to measure the length of objects. (....................................)
6. A unit used to measure the small lengths. (..........................)
7. A unit used to measure the lengths of your classroom. (..........................)
8. A tool used to measure the mass of gold, silver and chemical substances in laboratories. (....................................)
9. A tool used to measure the mass of any object. (....................................)
10. A device used to estimate the volumes of liquids or any irregular solid body. (....................................)

2. Correct the underlined word: صحح الكلمة التي تحتها خط

1. The space that occupied by a matter is <u>mass</u>. (...................)
2. The mass of equal volumes of different materials is <u>equal</u>. (...................)
3. <u>Graduated ruler</u> is used to determine the volume of irregular small stone. (...................)
4. Common balance is used to measure the <u>volume</u>. (...................)
5. The graduated ruler is used to measure the <u>mass</u>. (...................)
6. The <u>graduated tape</u> is used to measure the mass of fruits and vegetables. (...................)



3. Complete the following sentences:

تتميز
1. Matter is characterized by having .... and ....
2. Everything that occupies a space and has mass is called..................
3. The amount of matter in an object is called ....
4. Matter is everything that has .... and ....
5. The space taken by an object is called ....
6. Oxygen gas occupies a space, so it has a ....
7. Graduated ruler is used to measure ....
8. Measuring tape is used for measuring ....
9. .... is the suitable unit to measure the length of your pencil.
10. Meter is the unit for measuring ....
11. .... is the suitable unit for measuring the length of your room.
12. .... unit is used to measure small lengths, while .... unit is used to measure large lengths.
13. .... unit is used to measure the distance between Cairo and Damietta.
14. To estimate a certain weight of vegetables or cheese, we use..................
15. We use .... to estimate the mass of the chemical materials and things made of gold.
16. .... unit is used to measure small masses, while .... unit is used to measure big masses.
17. The Volume of the brick (Cuboid) = ... × .... × ....
18. Common balance is used to measure ....
19. The types of balances are .... and ....
20. Graduated cylinder is used to measure.....................
21. The units of measuring the volume of a solid body are .... and ....
22. The liter unit is used to measure the .... of liquids.
23. Cubic meter is the measuring unit of ....
24. Two liters = ... cm^3
25. Equal masses of different substances have .... volumes.
26. Equal volumes of different substances have .... masses.

4. Choose the correct answer:

1. The amount of matter that the object contains is ....

a. volume b. mass c. length d. matter

2. From the measuring tools of mass ....

a. Graduated tape b. Sensitive balance

c. Graduated cylinder d. Conical flask

3. .... is considered as a measuring units of small masses such as jewels.

a. meter b. ton c. kg d. gm

4. The space that is occupied by the object is ....

a. volume b. mass c. length d. matter

5. A stone is put in a jar containing 50 cm^3 of water, water level raises up to 80 cm^3, so the volume of the stone equals............

a. 20 cm^3 b. 30 cm^3 c. 50 cm^3 d. 80 cm^3

6. From the measuring tools of volume ....

a. Two pan balance b. Sensitive balance

c. Graduated cylinder d. Measuring ruler

7. The volume of solid material is measured by ....

a. m b. cm c. cm^2 d. cm^3

8. Your classmate placed a piece of iron is put into a 70 cm^3 beaker filled completely by water, so that a quantity of water volume 20 cm^3 is poured out the beaker. The volume of this piece equals.............

a. 20cm^3 b. 30cm^3 c. 50cm^3 d. 70cm^3

9. We can determine the volume of irregular small stone that doesn't dissolve in water by using ....

a. Graduated ruler b. Sensitive balance

c. Graduated cylinder d. common balance

5. Put (✓) or (✗)

1. Salt has volume. ( )
2. Matter has mass only. ( )
3. Centimeter and gram are the measuring units of length. ( )
4. We estimate the volume of liquids by liter. ( )
5. To estimate the mass of your golden ring, we use the common balance. ( )
6. Ton is used to measure the mass of fruits and vegetables. ( )
7. Different bodies that have equal volumes are equal in mass ( )

6. Give reason for each of the following:

1. The car has a volume.

....

2. A glass is a matter.

....

7. Calculate the volume of a cuboid whose length is 5 cm, its width 4 cm and it height equals 2 cm .

....

....

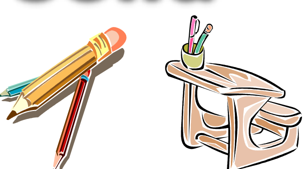
....



Lesson 2 Matter states and changes

Matter exists in three states المادة توجد فى ثلاث حالات

Solid



Liquid



Gas



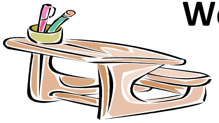
States of matter are solid, liquid and gaseous.

حالات المادة هى صلبة و سائلة و عازية

Solids



Iron



Wood



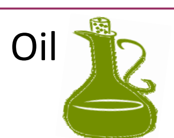
Salt

Solids have definite shape and definite volume

المواد الصلبة لها شكل محدد وحجم ثابت

Liquids

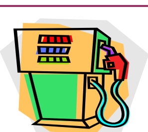
Oil



Milk



Petrol



Water



Liquids have definite volumes but they do not have definite shapes. (takes the shape of its container).

المواد السائلة لها حجم ثابت وليس لها شكل ثابت (تأخذ شكل الإناء)

Gases

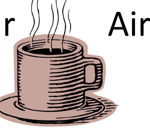
Carbon dioxide



Oxygen



Water vapour



Air



Gases have indefinite shape and indefinite volume

المواد الغازية ليس لها شكل محدد و لا حجم ثابت



1. Complete the following sentences:

1. States of matter are …………., …………. and ………….
2. Matter that takes the shape of its container and its volume can't be changed is …………..
3. The matter can be pressed in ………………state
4. There are a definite shape and a definite volume in …………… state.
5. Liquid have ………………… volumes and don't have definite ………………
6. In the ……………. matter, the volume and shape don't change.
7. Both liquids and gases don't have definite ……………………..
8. The ……………substances have definite shape and volume.
9. Iron and ………..are examples (أمثلة) of the solid matter.
10. Water and …………..are examples of the liquid matter.
11. Oxygen, ……….. and ……….. are considered (يعتبر/ يعد) gaseous matter.
12. On transferring (انتقال) water one pot (إناء) to another, It ……………………………………… ………………………………………………………………………………………………

2. Write the scientific term:

1. A state of matter that has indefinite shape and volume. (……………………)
2. A state of matter that has definite shape and volume. (……………………)
3. A matter characterized by having a definite volume but it takes the shape of its container. (……………………)
4. It takes the shape and volume of the container. (……………………)

3. Correct the underlined word:

1. There are <u>four</u> states of matter. (………………………)
2. Milk has a definite volume and a <u>definite</u> shape. (………………………)
3. Oxygen gas has a <u>definite</u> shape and volume. (………………………)
4. Water, oil and milk are <u>solid</u>. (………………………)



4. Choose the correct answer:

1. Matter has ……………………states

a. one b. two c. three d. four

2. …… is one of the liquids.

a. Salt b. Wood c. Iron d. Oil

3. Solids and liquids have definite ………….

a. shape b. volume c. shape and volume d. texture الملمس

4. All of these substances have definite shape and volume **except** …….

a. water b. wood c. sugar d. iron

5. ………….is one of the liquids.

a. salt b. iron c. benzene. d. wood

6. …………are similar متشابه in having indefinite shape.

a. solids and liquids b. liquids and gases c. solids and gases.

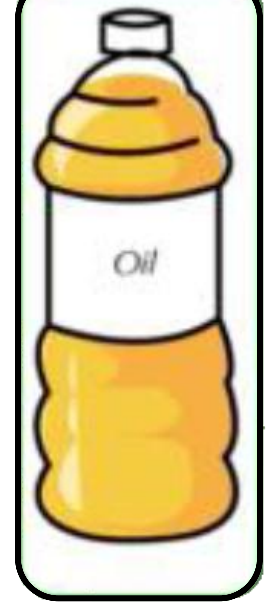
5. Classify:

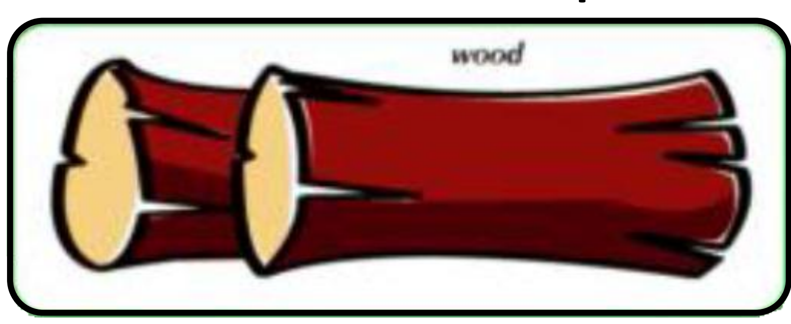
Oil – Table salt – Sugar – Mercury زئبق – Air –Water – Ice -Oxygen – Water vapour.

Solids	Liquids	Gases
…………………………………	…………………………………	…………………………………
…………………………………	…………………………………	…………………………………
…………………………………	…………………………………	…………………………………

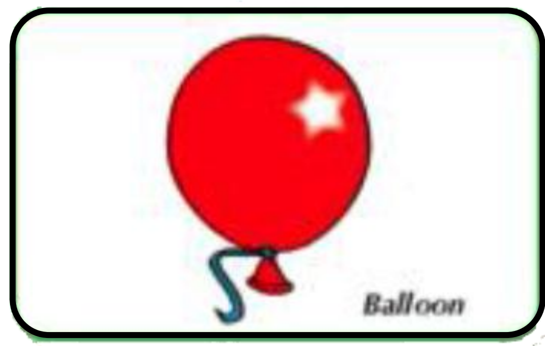
6. Put (✓) to the materials that have a definite shape:

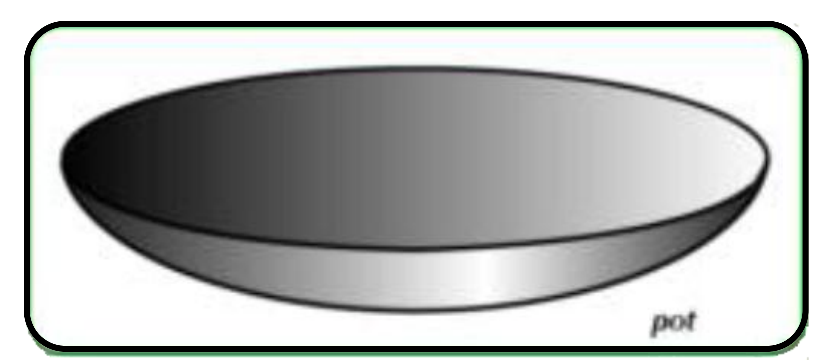












7. *Give reason for each of the following:*

1. Salt is a solid matter.

because it has definite shape and volume.

2. oil is a liquid matter

because It has a definite volume but it hasn't a definite shape

3. Air is a gaseous matter

because It hasn't a definite shape and volume

4. On putting a mixture of gravels (حصي) and water in a refinery (مصفاة) with minute holes, water passes while gravels remain in the refinery.

because gravel is solid matter has definite shape but water is liquid matter has indefinite shape.

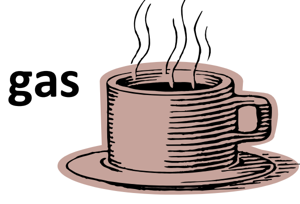


Water exist in three states: Ice, water, water vapour



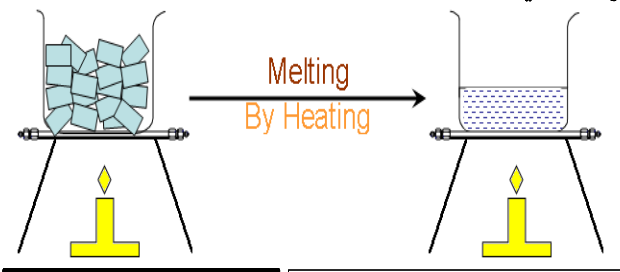






Melting	It is the change of **solid** (ice) to **liquid** (water) by **heating**.

الإنصهار هو تحول المادة من الحالة الصلبة (الثلج) إلي الحالة السائلة (الماء) بإرتفاع درجة الحرارة.





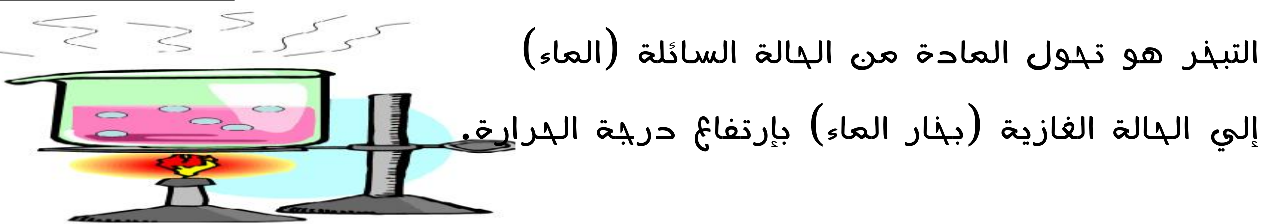
Freezing	It is the change of **liquid** (water) to **solid** (ice) by **cooling**.

التجمد هو تحول المادة من الحالة السائلة (الماء) إلي الحالة الصلبة (الثلج) بإنخفاض درجة الحرارة.

freezing
By cooling

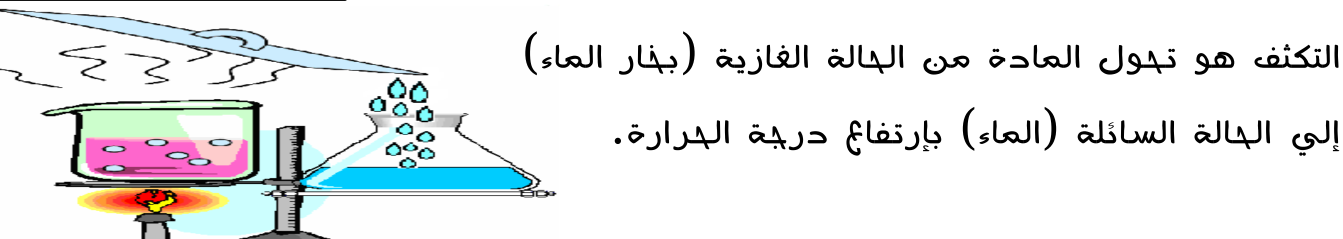
Evaporation	It is the change of **liquid** (water) to **gas** (water vapour) by heating

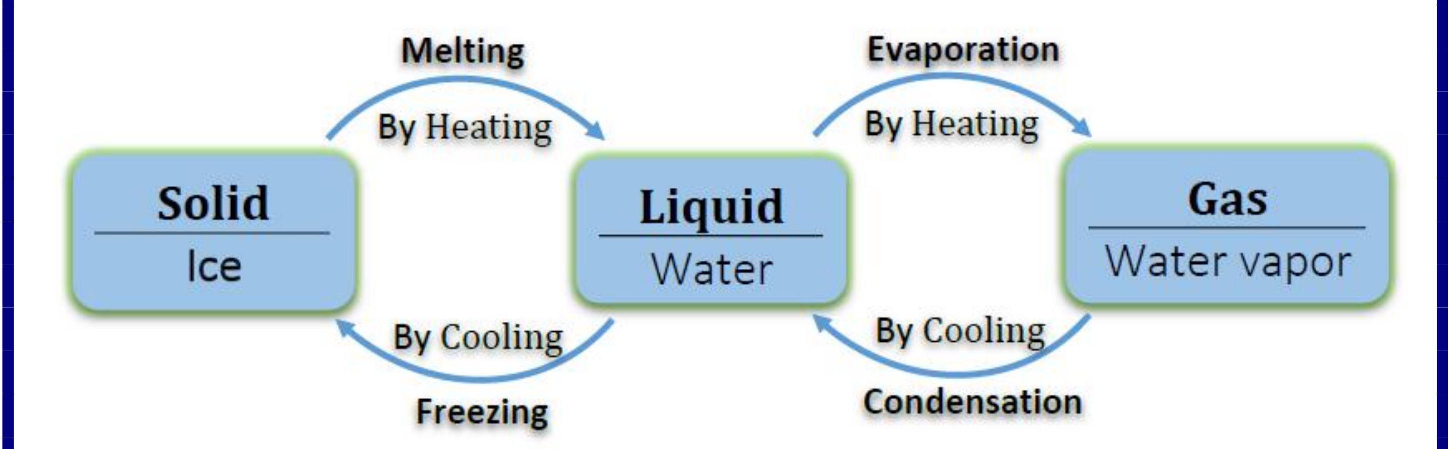
التبخر هو تحول المادة من الحالة السائلة (الماء) إلي الحالة الغازية (بخار الماء) بإرتفاع درجة الحرارة.



Condensation	It is the change of **gas** (water vapour) to **liquid** (water) by **heating**.

التكثف هو تحول المادة من الحالة الغازية (بخار الماء) إلي الحالة السائلة (الماء) بإرتفاع درجة الحرارة.





- ✓ Matter exists in only one state at ordinary room temperature.
  المادة توجد في حالة واحدة فقط في درجة حرارة الغرفة العادية
- ✓ Matter can changed from one state to another by heating or cooling
  المادة يمكن أن تتغير من حالة إلي أخري بالتسخين أو بالتبريد

G.R. The appearance of water droplets on the cars and leaves in the early morning. ظهور قطرات ماء علي العربيات أوراق الشجر في الصباح



because The water vapour in the air condenses on cold surfaces forming water droplets.

لأن بخار الماء في الهواء يتكثف علي الأسطح الباردة مكونًا قطرات ماء.

G.R. The glass which is put in the freezer shouldn't be full of water.

عند وضع زجاجة في مجمد الثلاجة (الفريزر) يجب ألا تكون ممتلئة بأكملها.

because The volume of ice is bigger than the volume of water, so the bottle will explode.

لأن حجم الثلج أكبر من حجم الماء لذلك سوف تنفجر الزجاجة

G.R. The amount of water keeps decreased as long as you are heating.

كمية الماء تستمر في النقصان طالما قمت بتسخينها

because It changes into vapour. لأنها تتحول إلي بخار

1. Complete:

1. Matter can be changed from one state to another by .... or ....
2. Melting is the change of matter from .... state to .... state.
3. Condensation is the change of matter from the .... state
   to the .... state.
4. The change of water from the liquid state into ice is called .... process.

تحول

5. The transfer of matter from liquid state to gaseous state is called ....

توجد غرفة

6. Water exists in the .... state at room temperature.

يصبح

7. If a solid melts, it becomes a ....
8. Water can be changed into ice by ....

غليان

9. When boiling water it changes from .... state into .... state.

يلمس

10. Water condenses if it touches a ....surface.

2. Write the scientific term:

1. The transfer of water into ice by cooling. (.........................)
2. The change of matter from liquid state to solid state. (.........................)
3. The change of matter from the gaseous state to the liquid state. (.................)
4. The transfer of ice into water by heating. (..........................)
5. The change of water to water vapour. (...........................)
6. The change of matter from liquid state to gas state. (..........................)
7. The change of matter from the solid state to liquid state (..........................)

3. Correct the underlined word:

1. Melting is the transformation of matter from the liquid state
   to the gaseous state. (..........................)
2. When water freezes, it changes into water vapour. (..........................)
3. Condensation is the change of matter from the liquid state
   to the solid state. (..........................)

4. Choose the correct answer:

مصحوبا
1. The change of water from the liquid state into ice is accompanied with:

a. an increase in mass b. an evaporation
c. an increase in temperature d. a decrease in temperature

2. The change of matter from the liquid state into the gaseous state is called:

a. condensation b. evaporation c. melting d. freezing

3. Cooling is accompanied with .... process

a. melting b. condensation c. evaporation d. (a) and (b) together

4. Gold industries need .... process

a. melting then cooling b. condensation then cooling
c. evaporation then cooling d. cooling then melting

5. The appearance of water droplets on a glass containing ice is due to ....

a. freezing b. evaporation c. condensation d. melting

6. When water vapour is received on a cold surface, it ....

a. evaporates b. condenses c. melts d. freezes

7. Changing of the matter from a gaseous state to a liquid one is ....

a. solidification b. condensation c. evaporation d. melting

8. On decreasing the temperature of water vapour, it ....

a. melts b. freezes c. condenses d. evaporates

5. Choose from the column (b) that is suitable for column (a)

(A)	(b)
• The change of matter from the liquid state into the gaseous state	1. Melting
• The change of matter from the solid state into the liquid state	2. Freezing
• The change of matter from the liquid state into the Solid state	3.Condensation
• The change of matter from the gaseous state into the liquid state.	4. Evaporation

Exercises

1. Complete:

1. Matter has ………….and ………….
2. Common balance is used for measuring ….............., while measuring tape is used for measuring ……..…........
3. Meter is the unit of measuring ……………, while kilogram is a unit for measuring ………………..
4. The unit volume of solid substance is ……….….., while for liquids ……...........
5. ……….............measures the volume of liquids and irregular solid substance.
6. States of matter are ……………, ……….…. and …………..
7. Matter that takes the shape of its container and its volume can't be changed is ………….
8. There are a definite shape and a definite volume in ………........... state.
9. The change of water from the liquid state into ice is called …….….. process.
10. When boiling water it changes from …….......... State into …..............state.
11. On decreasing the temperature Of water vapour it …….................
12. On transferring water from one pot to another its shape …….................
13. Melting is the change of matter from ……….... state to ……….…. state.
14. 1 kilogram = …………… gram.
15. 1 meter = ……………. Centimeter
16. 1 liter = ……………….milliliter
17. 1 liter = ………........cm ^{3}.
18. The space occupied by a cube with one meter side equals ………
19. The length can measure by some units as ……….or ……….
20. The transfer of matter from liquid state to gaseous state is called ………

2. Choose the correct answer:

1. When a piece of stone is put in a jar containing 40 cm^3 of water, the water level raises to 50 cm^3, so the volume of the stone equals ……………
(90 cm^3 - 10 cm^3 - 50 cm^3 - 40 cm^3)

2. The volume of a solid material is measured by…………… (cm - cm^2 - m^2 - cm^3)

3. The measuring unit of length is ………… (Ruler – liter – kilogram - centimeter)

4. Water vapour is an example for …………….. state (Gaseous – liquid – solid)

5. We can determine the volume of irregular shaped small stone that doesn't dissolve in water by using…………….
(Glass beaker – measuring cylinder – graduated ruler – common balance)

6. When a piece of iron is put in a 50 cm^3 beaker filled completely by water, so that a quantity of water volume 20 cm^3 is poured out the beaker.
The volume of this piece equals………… (20 cm^3 - 30 cm^3 - 50 cm^3 - 70 cm^3)

7. When four marbles of equal volume are put in 100 cm^3 graduated cylinder containing water, the water level raised up to 120 cm^3,
what is the volume of each marble? (30 cm^3 - 25 cm^3 - 20 cm^3 - 5 cm^3)

8. Changing of the matter from a gaseous state to a liquid one is …………….
(Solidification – condensation – evaporation – melting)

9. Changing the matter from liquid state to solid state accompanied with…………..
(Increase of heat – decrease in heat – stability of heat – increase in mass)

10. Volume of cuboids = ……………
(Length – width – height **or** length × width × height **or** length + width + height)

11. On decreasing the temperature of water vapour, it ………….
(Melts – freezes – condenses)

12. The change of matter from the liquid state into the gaseous state is called ………………… (Condensation – evaporation – melting – freezing)

13. Cooling is accompanied with …………. Process.
(Melting – evaporation – condensation)

14. When boiling water, it changes from ………..
(Solid to liquid **or** liquid to gas **or** gaseous state into solid state)

3. Write the scientific term:

1. Everything that has mass and occupies a space.
2. A unit used to measure the small masses.
3. A change of matter from liquid state to solid state by cooling.
4. The amount of matter that the body contains.
5. A balance used to measure the mass of jewels.
6. The change of matter from liquid state to gas state.
7. The change of matter from the gaseous state to the liquid state.
8. The state of matter that has definite shape and volume.
9. The change of matter from the solid state to liquid state

4. Put (√) or (×) and correct the wrong:

1. Graduated cylinder is one of the measuring tools of volume.
2. Sensitive balance is used to measure the mass of jewels.
3. On rising up the temperature of a piece of wax it melts.
4. Freezing is a change of solid matter to liquid state.
5. On decreasing the temperature of the water vapour, it condenses.
6. Liquid matter has definite shape and volume.



5. Correct the underlined word:

1. Water and oil are solids.

2. The space that occupied by a matter is mass.

3. The mass of equal volumes of different materials is equal.

4. Graduated ruler is used to determine the volume of irregular small stone.

5. Common balance is used to measure the volume.

6. Gases have definite shape and definite volume.

7. Matter has two states.

8. Condensation is the change of matter from the liquid state to the solid state

9. The graduated ruler is used to measure the mass.

10. The graduated tape is used to measure the mass of fruits and vegetables.

11. Solids are changing their shapes and volumes according to the container.

6. Give reasons for:

1. Water is a liquid matter.

....

2. A book is a matter.

....

3. Milk has definite volume and indefinite shape.

....

4. Wood has definite volume and definite shape.

....

5. Air has indefinite volume and indefinite shape.

....

Lesson 3 Metals and nonmetals

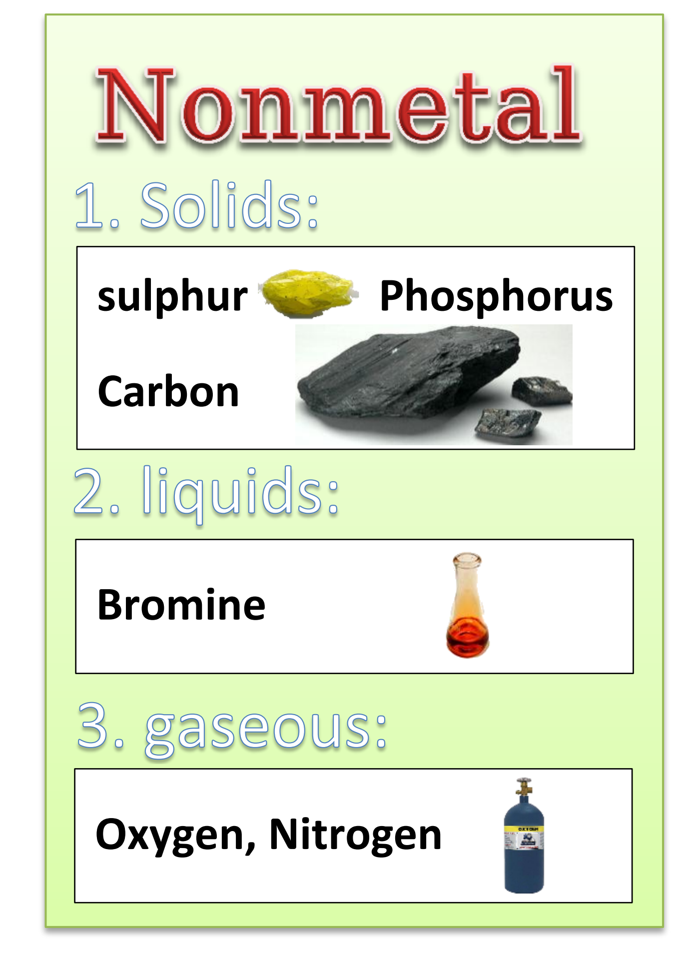
element It is the simplest form of matter that can not be decomposed into two substances or more.

العنصر هو أبسط صورة توجد عليها المادة ولا يمكن تحليلها إلي مادتين أو أكثر .

Elements are classified into **metal** and **nonmetal**.

العناصر تنصف إلي فلزات (معادن) و لافلزات.





- ✓ All metals are solids except **mercury**.
- ✓ Nonmetal liquid is **bromine**.

Properties of metals and nonmetals: خصائص الفلزات (المعادن) واللافلزات

1. Metals have luster (are shiny) الفلزات لها بريق معدني
   Nonmetals have no luster (are not shiny) اللافلزات ليس لها بريق معدني
2. Metals are good conductors of electricity.
   الفلزات جيدة التوصيل للكهرباء
   Nonmetals are bad conductors of electricity except carbon.
   اللافلزات رديئة التوصيل للكهرباء ما عدا الكربون (الجرافيت)
3. Metals are good conductors of heat.
   الفلزات جيدة التوصيل للحرارة
   Nonmetals are bad conductors of heat.
   اللافلزات رديئة التوصيل للحرارة
4. Metals have high melting points.
   الفلزات درجة انصهارها عالية
   Non-metals have low melting points.
   اللافلزات درجة انصهارها منخفضة
5. Metals can be bent and hammered (malleable & ductile).
   الفلزات قابلة للطرق والثني
   Non-metals can't be bent and hammered.
   اللافلزات غير قابلة للطرق والثني



1. Complete the following sentences:

بيئة مصنوع من

1. All the materials you see in your environment are made up of ....

2. .... is the building unit of matter.

3. The substance that can't be decomposed into two substances or more is known as ....

4. Elements are classified into .... and ....

5. The group of elements that have luster is known as ....

6. The group of elements that doesn't have luster is known as ....

7. .... is a liquid metal, while .... is a liquid non-metal.

8. All non-metals are .... Conductors of electricity except ....

درجة حرارة الغرفة

9. At room temperature, all metals are solids except .... which is ....

10. Metals are good conductors of .... and ....

2- Write the scientific term:

1. It is the simplest form of matter that can't be decomposed into two substances or more. (..............................)

2. Elements which can be bent, hammered, and are good conductors of heat and electricity. (..............................)

3. Elements that have low melting point. (..............................)

4. Elements that have metallic luster. (..............................)

5. Elements that are bad conductors of heat. (..............................)

6. The only liquid metal at room temperature. (..............................)

7. Non-metal is a good conductor of electricity. (..............................)



3. Correct the underlined word:

1. All metals are solid elements in normal temperature except <u>bromine</u>.

2. <u>Sulphur</u> is a non-metal element that good conductor of electricity.

3. Metals are <u>bad</u> conductors of heat and electricity.

4. <u>Mercury</u> is a liquid non-metal.

5. Non-metals can found in <u>two</u> states.

4. Choose the correct answer:

1. .... is an example of non-metals.

a. Copper b. Carbon c. Aluminium d. Iron

2. All metals are solids at room temperature except ....

a. copper b. carbon c. mercury d. gold

3. .... is the liquid nonmetal.

a. Copper b. Iron c. Mercury d. Bromine

4. All the following elements are good conductors of electricity except …………

a. Carbon b. Iron c. Sulphur d. Copper

5. All the following are metals except ....

a. copper b. carbon c. aluminium d. iron

6. Carbon is characterized with ……………….

a. good conductor of heat. b. good conductor of electricity.

c. malleable and ductile. d. high melting point

7. A gaseous non-metal is ....

a. bromine b. oxygen c. copper d. mercury

الأهمية الاقتصادية

The economic importance (life applications):



1. Metals

هياكل السيارات   كباري

1- **Iron** is used in making: **Bridges, car frames, doors** and **street lights (lamp posts).**



2- **Aluminum** is used in making: **Cooking pots** and **foil paper**.

3- **Copper** is used in making: **Statues, coins** and **electric wires.**

صنع

4- **Gold** is used in manufacturing (making) **Jewels.**



2. Non Metals



Carbon (graphite) is used in making:

positive poles of dry cells (batteries).

الأقطاب الموجبة للأعمدة الجافة (البطاريات)

Element	Kind	Importance
1- Iron	Metal	Bridges and car frames
2- Aluminum	Metal	1- Cooking pots 2- foil paper
3- Copper	Metal	1- Electric wires 2- Statues 3- metallic coins
4- Gold and Silver	Metal	Jewellery
5- Carbon (graphite)	Non-metal	positive poles of dry cells

Give reason:

a. Iron is metal element.

Because it has luster and good conductor of electricity.

b. Sulphur is a non-metal element.

Because it hasn't luster and bad conductor of electricity.

c. Bridges and car frame are made of iron.
Foil papers are made of aluminum.

Because it can be bent and hammered.

d. Electric wires are made of copper.
Carbon (graphite) is used in making positive poles of dry cells.

Because it is good conductor of electricity.

e. Cooking pots are made of aluminum.

Because aluminum is good conductor of heat.

f. The handles of cooking pans are made of plastic.

Because plastic is bad conductor of heat.

g. Jewels are made of gold or silver.

Because they are shiny and can be shaped easily

1. Complete the following sentences by these words:

metals - Iron- elements - Non-metals - gold - carbon

1. We use .... in manufacturing jewels.
2. We use .... in manufacturing bridges.
3. Poles of electric cells are made up of ....
4. All the materials you see in your environment are made up of ....
5. The group of elements that have luster is known as ....
6. The group of elements that doesn't have luster is known as ....

2. Choose the correct answer:

1. Electric wires are made up of ....

a. sulphur b. Carbon c. Copper

2. Cooking pots are made of ....

a. aluminium b. Iron c. sulphur

3. Gold and silver are used in manufacturing ....

a. Bridges b. planes c. jewels

4. Statues are made up of ....

a. Copper b. Sulphur c. Carbon

5. .... is used in making bridges and lamp-posts.

a. copper b. carbon c. iron

3. Give one use for each of the following:

1. Gold and silver:

....

2. Aluminium:

....

3. Carbon:

....

4. Iron:

....

5. Copper:

....

6. Mercury:

....

Exercises

1. Complete:

1. All the materials you see in your environment are made up of ………….
2. Group of ……………….. has metallic luster , while the group of………..... doesn`t has luster.
3. Using ………………. in manufacturing jewels.
4. Poles of electric cells are made up of ……………………….
5. Copper and graphite are good conductors of …………………..
6. ……………..is a liquid metal, While …………….is a liquid non-metal.
7. All non-metals are ……………..conductors of electricity except…………..
8. Cooking pots are made of …………., While handles of cooking pots are made of …………………
9. Metals have ………..melting point, but…………………have low melting point.

2. Choose the correct answer:

1. An example of non-metal is ………………… (Copper – aluminum – Sulphur)
2. All metals are solids at room temperature except………….. (Iron – mercury – Gold – bromine)
3. Electric wires are made up of …………….. (Sulphur – Oxygen – copper)
4. Carbon is characterized with ……………… (good conductor of heat – good conductor of electricity – malleable and ductile)
5. The papers used in wrapping chocolate up shows the property of …….......... (electricity conductivity – the ability for melting – malleable and ductility)

3. Give reasons:

1. Aluminum is used in making cooking pots.

....

2. Car chassis and bridges are made up of iron.

....

3. Carbon (graphite) is used as positive pole in dry cell.

....

4. Iron, copper and aluminum are good conductors of heat.

....

5. Handles of cooking pots are made up of wood.

....

4. Write the Scientific term:

1. Elements that have luster and have the ability to conduct electricity.
2. Non-metal is a good conductor of electricity.
3. The simplest of matter that cannot be decomposed into two substances or more.
4. Metal is used in making electric wires.
5. Elements have low boiling point and cannot be bent.

Correct the underline words:

1. All metals are solid elements in normal temperature except bromine.
2. Sulphur is a non-metal element that good conductor of electricity.
3. Metals are bad conductors of heat and electricity.
4. Cooking pots are made of wood.
5. Mercury is a liquid non-metal.
6. Non-metals can found in two states.
7. Positive pole in dry cell is made of plastic.

Lesson  4 Physical and Chemical change

Physical change

It is the change in the shape (appearance) of a matter without a change in its structure

التغير الفيزيائي: هو تغير في شكل المادة الظاهري وليس في تركيب المادة.

chemical change

It is the change in the structure of a matter that forms a new substance, with different properties.

التغير الكيميائي: هو تغير في تركيب المادة ينتج عنه مادة جديدة.

Examples:

Changing matter from one state to another and this is known as "physical change".

تغير المادة من حالة إلي أخري يعرف بالتغير الفيزيائي.

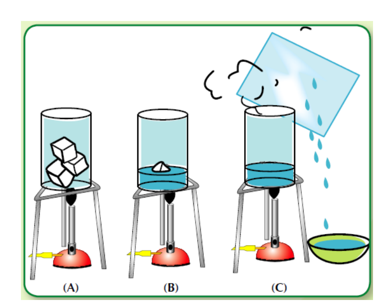
انصهار الشمع

Melting of wax, **freezing** water, **boiling** of water,

evaporation of water, **condensation** of water vapour

دورة الثلج

and **ice cycling** are *physical change.*



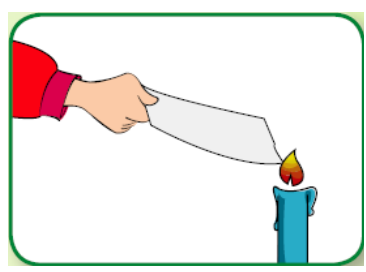
Ice cycling



Burning (combustion) of sugar, paper, wax and wood are *chemical change.*

Iron rust, **rotten** of fruit and their **fermentation** are *chemical change.*

صدأ الحديد و تعفن الفاكهة وتخمرها يعتبر تغير كيميائي


Burning paper

1. Complete:

1. Melting of wax is considered a .... change.
2. Rusting of Iron is considered a .... change.
3. Evaporation of water is considered a .... change.
4. The chemical change is a change in ....
5. Rotten of fruits and their fermentation is considered as a .... change.
6. The physical change is a change in the .... of the substance without any change in its ....
7. .... and .... are examples for physical change.
8. The physical change is a change in .... without change in ....
9. Melting of any solid is a .... change.
10. .... and .... are forms of chemical changes.
11. Burning of wood is considered as a .... change.
12. Melting of ice is considered as a .... change
13. Boiling of water and its vapour release is considered as a .... change

2. Put (✓) or (✗)

1. The change of matter from one state to another is a chemical change. ( )
2. Melting of ice is not a chemical change. ( )
3. Rusting of iron does not change the structure of iron. ( )
4. Melting of wax forming wax drops is a chemical change. ( )
5. Fermentation of fruits is a physical change. ( )
6. Condensation forming rain water is a chemical change. ( )
7. Burning a match stick is considered a physical change. ( )
8. The change of paper to black ash is a physical change. ( )

3. Choose the correct answer:

1. .... belongs to chemical changes.

a. Burning of a candle b. Ice melting c. Water freezing

2. On leaving iron wires in water and air for few days ....

a. their colour changes b. a chemical change takes place c. (a) and(b)

3. ……………….. is a physical change

a. Wood combustion b. burning of sugar c. iron rusting d. water freezing

4.The physical change is a change in ....

a. the taste of matter b. the structure of matter

c. the appearance of matter d. (a) and (c)

5. Putting a bottle of water in the freezer of a refrigerator for a period of 24 hours causes a .... to water

a. physical change b. change in structure c. chemical change

6. Freezing of water is considered as ....

a. physical change b. chemical change c. a new substance



Physical change:





1. Grinding of sugar طحن السكر
   ذوبان
2. Dissolving of table salt in water
3. Copper malleability into wires
4. Breaking of chalk

Give reason:

1. <u>Melting of ice</u> is a **physical change.**

   because It change in shape and appearance not in structure.

   لأن التغير في الشكل والمظهر وليس في التركيب

we conclude that the change happened to ice, candle, sugar, table salt does not even change their properties and does not change their chemical structures as well, this is known as the " Physical change".

Chemical change:

1. Using the yeast in baking
   استخدام الخميرة في الخبيز
2. Production of yoghurt from milk
   انتاج الزبادي من اللبن
3. Iron rust
4. Rotten of fruit and their fermentation

Give reason:

1. <u>Burning of sugar</u> is a **chemical change.**

because It change in structure make new substance with different properties.

لأن التغير في التركيب ينتج عنه مادة جديدة بخصائص مختلفة.

That burning of sugar, paper and iron rust produced new substances that are different in their structure from the original one and this is called "chemical change".

1. Complete:

1. Ductility of copper into wires is a ………………. change.
2. Grinding of sugar is considered a ………………. change while its burning is a ………………… change
3. The dissolving of sugar in water is a ………………. change.
4. Cutting of bread is a .... change.
5. Fermentation of fruits produces a new .... with new ....
6. Adding table salt to water with stirring produces ………………. change.
7. Adding yeast in baking is considered a ………………. change.

2. Write the scientific term:

1. It is the change in the shape of matter not in its structure. (………………………)
2. It is the change in the structure of matter to form a new substance with different properties. (……………………………)
3. A change occurs when we produce yoghurt from milk. (……………………………)
4. A change occurs during paper recycling. (……………………………)

3. Give reason:

1. Burning paper is chemical change

…………………………………………………………………………………………

2. Cutting paper is physical change.

…………………………………………………………………………………………

3. Iron used in building is painted with zinc or plastic

…………………………………………………………………………………………





1. Complete:

1. A matter has .... and ....
2. Measuring tape is used for measuring ....
3. Measuring units of length ...., ... and ....
4. Measuring units of mass ...., ... and ....
5. Measuring units of volume ...., ... and ....
6. .... is a tool used for measuring the volume of irregular solid bodies and liquids.
7. .... is a tool used for measuring the mass of gold and chemicals while .... is a tool used for measuring the mass of big masses like fruits.

10. Five meters equal .... centimeters.
11. When your classmate puts a piece of iron in a baker that is completely fillec with water, a quantity of 20 cm^3 of water is poured out, so the volume of the piece of iron equals ....
12. .... unit is used to measure the distance between Cairo and Damietta.
13. The space occupied by a cube with one meter side equals ....
14. States of matter are ...., ... and ....
15. Matter that takes the shape of its container and its volume cannot be changed is ....
16. On transferring water from one pot to another, its shape ....
17. Matter can be pressed in case of its .... state.
18. There are a definite shape and a definite volume in the .... State.
19. The change of matter from the solid state into the liquid state is accompanied with ....
20. poles of electric cells are made up of ....

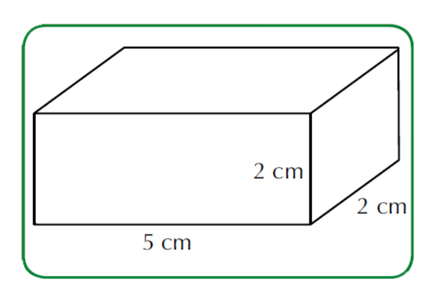
21. The group of elements that doesn't have luster is known as ....
22. Electric wires are made up of ....
23. Gold and silver are used in manufacturing ....
24. All the materials you see in your environment are made up of ....
25. We use .... in manufacturing bridges.
26. .... can be bent, while .... cannot be bent.
27. .... is a liquid-metal, while sulphur is a ....
28. Silver is a shiny element, so it belongs to ...., while sulphur is an element that doesn't have luster so, it belongs to ....
29. The melting point of sulphur is .... than the melting point of aluminium.
30. Adding .... to gold in order to reshape it into jewelry.

2. Write the Scientific term:

1. Everything that has a mass and occupies a part of space.
2. The amount of matter that the object contains.
3. The space that is occupied by the object.
4. A tool that is used to estimate the mass of tiny objects as gold and chemicals.
5. A state that has definite volume and indefinite shape.
6. The change of water from the gaseous state to the liquid state by cooling.
7. The change of water from the liquid state to the gaseous state by heating.
8. The transfer of ice into water by heating.
9. The simplest form of matter that can't be analyzed into two substances or more.
10. A metallic element that is used in making car frames, bridges and street lights.



3. Choose the correct answer:



1. The volume of the box shown in the figure = ... cm^3

a. 30 b. 25 c. 20

2. When boiling water, it changes from ....

a. a solid state into a liquid one.

b. a liquid state into a gaseous one

c. a gaseous state into a solid one

3. On decreasing the temperature of water vapour, it ....

a. freezes b. condenses c. melts.

4. The carbon is characterized with ....

a. good conductor of heat

b. good conuctor of electricity

c. malleable and ductile.

5. The papers used in wrapping chocolate up shows the propery of ....

a. electricity conductivity b. the ability for melting c. Malleability and ductility

6. which of the following is considered as a physical change؟

a. Burning of fuel b. melting of a candle c. Iron rust

7. The change produced as a result of malleability of copper into wires is the same change produced from...........

a. making bread b. melting of wax c. burning of coal

8. which of the following is considered a chemical change that happens to a piece of paper?

a. bending it b. cutting it into pieces c. burning it

4. What happen when ...... and give reason:

1. Putting a bottle of water in the freezer?

....

....

2. Boiling of water and exposing the product to a cold surface?

....

....

3. Putting a piece of wet iron in a jar filled with a dry oxygen?

....

....

4- Putting a little sugar in a beaker over a flame?

....

....

5. Give Reasons:

1. Air is a matter.

....

2. Salt is a solid matter, while oil is a liquid matter.

....

3. Air is a gaseous matter.

....

4. On making tea, water drops are formed on the cover of teapot.

....

5. Appearance of some water droplets on the plant leaves.

....

6. The glass bottle which is put on the freezer of the refrigerator shouldn't be full of water.

....

7. Gaseous matter is compressed and packed in cylinders.

....

8. Iron is an element.

....

9. Gold and silver are used in making jewelers.

....

10. Cooking pans are made of aluminum.

....

11. Electric wires are made of copper.

....

12. Handles of cooking pots are made of wood or plastic.

....

13. Iron ,copper and aluminum are good conductors of heat.

....

14. Burning wood is chemical change

....

15. Melting wax is physical change.

....

6. Put (√) or (×) and correct the wrong sentence:

1. Sensitive balance is used to measure the mass of jewels.
2. The graduated ruler is used to measure the mass.
3. The graduated tape is used to measure the mass of fruits and vegetables.
4. Carbon and sulphur don't have luster.
5. On rising up the temperature of a piece of wax it melts.
6. Freezing is a change of solid matter to liquid state.
7. On decreasing the temperature of the water vapour, it condenses.
8. All metals are solid elements in normal temperature except bromine, it is liquid element.
9. Liquid matters have definite shapes and definite volumes.
10. Solids are changing their shapes and volumes according to the container.
11. Sulphur is non-metal element and good conductor to electricity.
12. Graduated ruler is used to determine the volume of irregular small stone.
13. The mass of equal volumes of different materials is equal.
14. Condensation is the change of matter from liquid state to the solid state.
15. Metals are the simplest form that the matter found on it.

7. What is meant by:

1. Melting: ....

2. Mass: ....

3. Metals: ....



Lesson 1 Stars and Planets

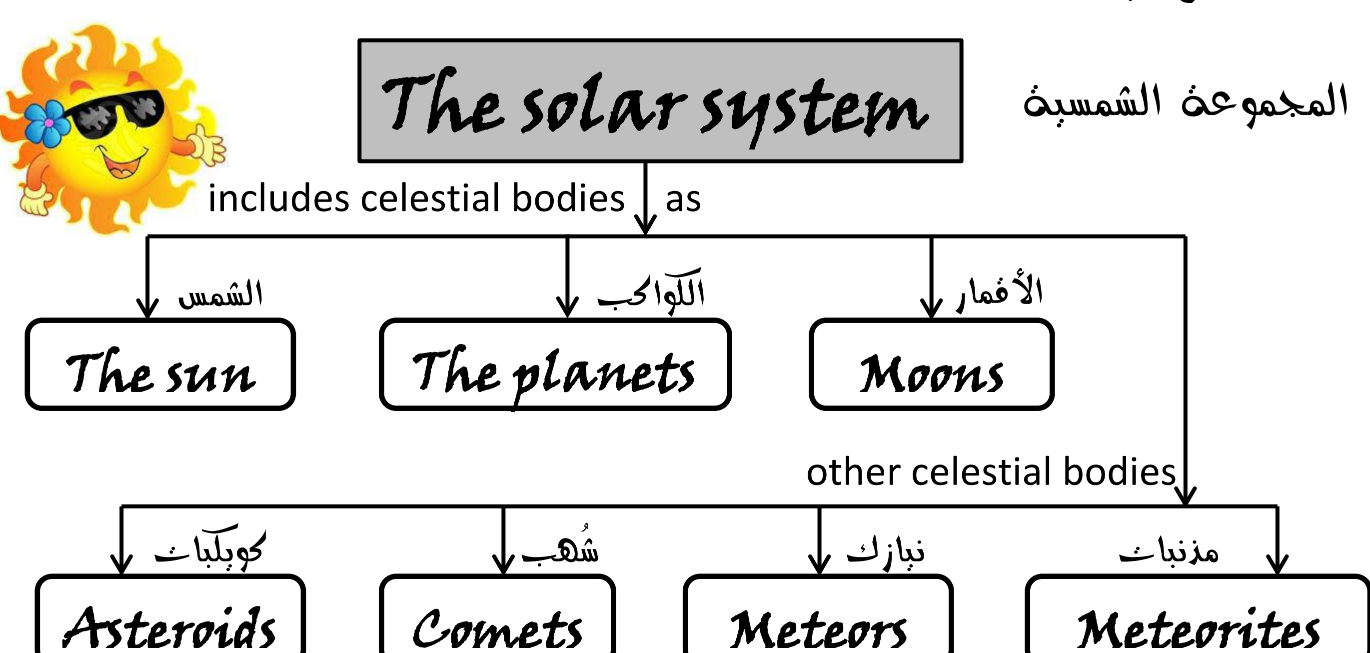
Stars

They are shiny bodies with different shapes in vast vacuum which know as space.

النجوم هي أجسام مضيئة ذات أشكال مختلفة في فراغ فسيح يعرف بالفضاء

G.R. **The stars seem very small in size.** النجوم تبدو صغيرة جدا في الحجم

Because they are very far away from us. لأنها تقع بعيدة عنا جداً



Sun

It's a shining star emits (radiates) light and heat.

الشمس نجم مضئ يشع ضوء وحرارة .

* It is a medium-sized star. نجم متوسط الحجم
* It is the nearest star to us. أقرب نجم لنا
* It is the biggest body in solar system. أكبر جسم في المجموعة الشمسية
* It is lies in the center of the solar system تقع في مركز المجموعة الشمسية

G.R. **The sun seems bigger to us than the other stars.**

الشمس تبدو لنا أكبر حجما من النجوم الأخري

Because It is nearest star to us. لأنها أقرب نجم لنا



planets | They are dark bodies that revolve around the sun in fixed orbits.

الكواكب هي أجسام معتمة تدور حول الشمس في مدارات محددة.

* They are 8 planets in solar system: توجد ثمانية كواكب في المجموعة الشمسية

Mercury – Venus – Earth – Mars – Jupiter – Saturn – Uranus - Neptune

1. Complete:

بفع

a. The .... is located in the center of the solar system and there are .... revolving around it in definite orbitals.

b. Planets are .... bodies that revolve around the sun in fixed orbits.

c. The solar system consists of eight ....

d. The stars are .... bodies while the .... are dark bodies.

e. There are .... planets in the solar system.

f. At night the big stars in the sky look ...., because they are .... from us.

g. The sun radiates .... and ....

h. .... are shiny bodies.

i. Sun seems the largest star in the sky because it is the .... star to the earth.

j. Planets revolve around the sun in .... path.

k. .... is the biggest body in the solar system.

l. The solar system consists of ...., ..., ... and other celestial bodies.

2. Write the scientific term:

a. Shinning objects radiate light and heat and appears in the sky at night.

b. Moons, meteors, sun, eight planets, asteroids, comets and meteoroids.

c. Dark bodies revolve around the sun and don't emit light.

d. The largest body in the solar system.

3. Choose the correct answer:

1. The sun is a star because it ....

a. absorbs light b. reflects light c. radiates light d. let light pass through

2. The number of the planets in the solar system is ....

a. 4 b. 6 c. 8 d. 9

3. The central body of the solar system is the.........

a. Earth b. sun c. moon d. comets

4. The sun is a .... sized star.

a. small b. medium c. large d. huge

5. The sun is one of ....

a. planets b. moons c. stars d. Asteroids

6. The stars ....

a. are lightning bodies. b. are dark bodies.

c. are bodies that don't emit light & heat.

7. The number of stars in the solar system is ....

a. zero b. one c. eight d. nine



Properties of planetes

1-Mercury

1. It is the smallest planet. أصغر كوكب
The nearest planet to the sun. أقرب كوكب إلي الشمس



2-Venus

2. The most beautiful planet. أجمل الكواكب



3-Earth

3. The planet where we live. الكوكب الذي نعيش عليه



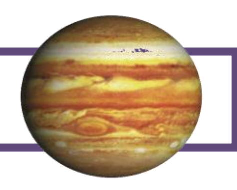
4-Mars

4. The red planet. الكوكب الأحمر



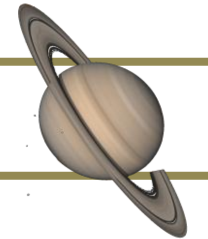
5-Jupiter

5. The biggest planet. أكبر الكواكب



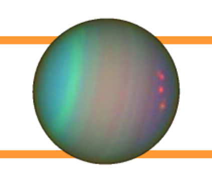
6-Saturn

6. It has colored rings around it. توجد حوله حلقات ملونه



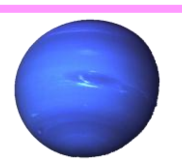
7-Uranus

7. The coldest planet. أكثر الكواكب برودة



8-Neptune

8. The farthest planet. أبعد كوكب
Called the blue planet. يسمي الكوكب الأزرق



moon	It is a dark body revolves around the earth, it reflects the light of the sun, and thus it seems shiny.

القمر هو جسم معتم يدور حول الأرض ويعكس ضوء الشمس لذا يبدو مضيئًا

* Moons are followers of planets الأقمار هي توابع الكواكب

G.R. **The sun is a star while the earth is a planet.**

الشمس نجم بينما الأرض كوكب

Because the Sun is a shiny body emits heat and light,
while the Earth is a dark body revolves around the sun.

G.R. **The moon is dark body but we see it shining.**

القمر جسم معتم ولكن نراه مضئ

Because it reflects the sunlight. لأنه يعكس ضوء الشمس

1. Complete:

1. The earth is located between .... and ....
2. The....... is the smallest planet while...... is the farthest planet from the sun.
3. Mars is known as .... , while Neptune is the ....
4. The nearest planet to the sun is .... while the biggest planet is ....
5. The moon is dark but it seems shiny as it .... the sunlight.
6. Mercury is the .... Planet to the sun .
7. The third planet away from the sun is ....
8. .... is the blue planet, while Uranus is the .... planet.
9. Planets revolve around ...., while moons revolve around ....

2. Write the scientific term:

a. Dark objects revolve around the earth and reflect the sun rays falling on them.

b. The most beautiful planet.

c. The planet where we live.

d. The planet that has colored rings around it.

e. The followers of planets revolve around some planets.



3. Choose the correct answer:

1. The nearest planet to the sun is..................

a. The earth b. Mercury c. Neptune d. Jupiter

2. The biggest planet is..................

a. The earth b. Mercury c. Neptune d. Jupiter

3. We see the moon shinning because it.........

a. absorbs light b. reflects light c. radiates light

d. lets light pass through it light pass.

4. .... planet lies between Mercury and Earth planets.

a. Saturn b. Jupiter c. Venus

5. The red planet is ....

a. Jupiter b. Mercury c. Mars

6. The blue planet is ....

a. Neptune b. Mars c. Jupiter

7. .... is dark body that reflects sunlight.

a. Star b. Moon c. Mars

3- compare the planet to the star.

Points of comparison	Planet	Star
a) Definition		
b) Examples		

Exercises

1. Complete:

1. The stars are ……………… bodies while the ………………… are dark bodies.

2. The third planet away from the sun is ……………….

3. Planets are ………………… bodies that revolve around the sun in fixed orbits.

4. .... is the blue planet, while Uranus is the .... planet.

5. The solar system consists of eight ….…………

6. Mercury is the …………… Planet to the sun .

7. The sun radiates ………………….. and ………………….

8. Sun seems the largest star in the sky because it is the .... star to the earth.

9. The nearest planet to the sun is .... while the biggest planet is ....

10. ……………… are shiny bodies.

11. The moon is dark but it seems shiny as it ……………… the sunlight.

12. Mars is known as .... , while Neptune is the ....

13. There are ………………… planets in the solar system.

14. Planets revolve around ...., while moons revolve around ....

15. The .... is located in the center of the solar system and there are .... revolving around it in definite orbitals.

16. Planets revolve around the sun in ………………….. path.

17. The .... is the smallest planet while .... is the farthest planet from the sun.

18. .... is the biggest body in the solar system.

19. The solar system consists of ...., ..., ... and other celestial bodies.

20. The earth is located between .... and ....

2. Write the scientific term:

1. Shinning objects radiate light and heat and appears in the sky at night.

2. Dark objects revolve around the earth and reflect the sun rays falling on them.

3. The largest body in the solar system.

4. The most beautiful planet.

5. Dark bodies revolve around the sun and don't emit light.

6. The planet that has colored rings around it.

7. The followers of planets revolve around some planets.

8. Moons, meteors, sun, eight planets, asteroids, comets and meteoroids.

9. the planet where we live.

3. Give reason:

a. The stars seem very small in size.

....

b. The sun seems bigger to us than the other stars.

....

a. The sun is a star while the earth is a planet.

....

b. The moon is dark body but we see it shining.

....

4. Choose the correct answer:

1. We see the moon shinning because it..........

a. absorbs light b. reflects light c. radiates light

d. lets light pass through it light pass.

2. The stars ....

a. are lightning bodies. b. are dark bodies.

c. are bodies that don't emit light & heat.

3. The biggest planet is..................

a. The earth b. Mercury c. Neptune d. Jupiter

4. The number of stars in the solar system is ....

a. zero b. one c. eight d. nine

5. The nearest planet to the sun is..................

a. The earth b. Mercury c. Neptune d. Jupiter

6. The number of the planets in the solar system is ....

a. 4 b. 6 c. 8 d. 9

7. The blue planet is ....

a. Neptune b. Mars c. Jupiter

8. The central body of the solar system is the.........

a. Earth b. sun c. moon d. comets

9. The sun is a star because it ....

a. absorbs light b. reflects light c. radiates light d. let light pass through

10. ……………… is dark body that reflects sunlight.

a. Star b. Moon c. Mars

11. The sun is one of ....

a. planets b. moons c. stars d. Asteroids

12. The red planet is …………

a. Jupiter b. Mercury c. Mars

13. The sun is a .... sized star.

a. small b. medium c. large d. huge

14. …………… planet lies between Mercury and Earth planets.

a. Saturn b. Jupiter c. Venus



Lesson 2 The Rotation of the Sun and the Earth

* The Sun rises from the East and sets to the West.

الشمس تشرق من الشرق وتغرب من الغرب

* This phenomenon doesn't occur due to the rotation of the sun, but due to the rotation of the Earth around itself (its axis), where it is called (the apparent rotation of the Sun).

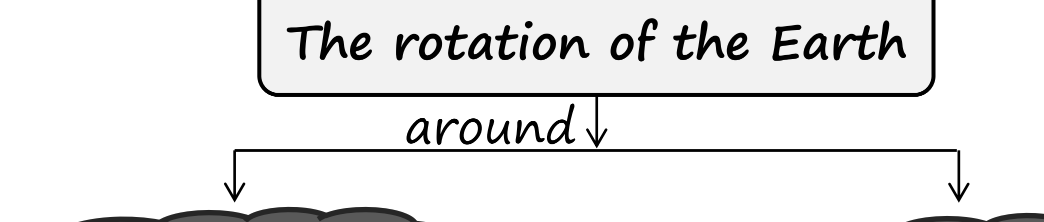
هذه الظاهرة ليست بسبب دوران الشمس ولكن بسبب حركة الأرض حول نفسه (محوره) حيث تسمي بالحركة الظاهرية للشمس

G.R. **The apparent rotation of the Sun.** الحركة الظاهرية للشمس

Due to the rotation of the Earth around itself بسبب دوران الأرض حول نفسه

G.R. **The movement of shadow of any body.** حركة الظل لأي جسم

Due to the rotation of the Earth around itself بسبب دوران الأرض حول نفسه



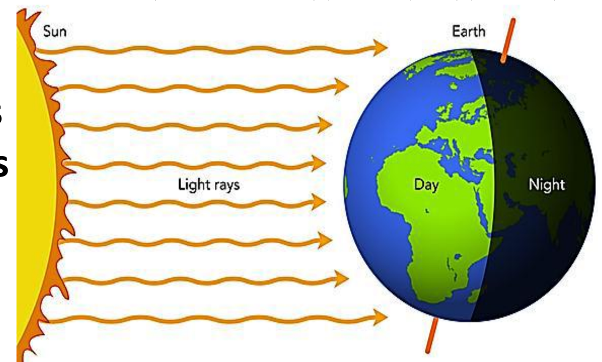
The rotation of the Earth around itself:

*** The Earth rotates around its inclined axis once every 24 hours (one day).**

الأرض تدور حول محورها المائل مرة كل 24 ساعة (واحد يوم)

*** The side (hemisphere) of the Earth that faces the sun during this rotation becomes bright or day while the other side becomes dark or night.**

الجانب (نصف الكرة) الأرضي الذي يواجه الشمس خلال هذا الدوران يصبح نهارا بينما الجانب الآخر يصبح ليلًا





*** The rotation of the Earth around its axis causes the sequence of day and night.**

دوران الأرض حول محورها بسبب تعاقب الليل والنهار

G.R. **The sequence of Day and Night** الحركة الظاهرية للشمس

Due to the rotation of the Earth around itself بسبب دوران الأرض حول نفسه

1. Complete:

1. The Sun rises from …………… and sets at ………….
2. The Earth rotates around its axis once every ……………….
3. The axis of the Earth is …………………….
4. The earth rotates around …………… and ……………
5. Sequence of day and night occurs due to the ....
6. The apparent movement of the sun is due to the rotation of ....

2. Choose the correct answer:

1. The Earth axis is……………………

a. vertical b. inclined c. horizontal

2. Changing the position of shadow of an object during the day occurs due to:

a. rotation of the sun around the Earth. b. rotation of the sun around its axis.
c. rotation of the Earth around its axis.

3. The apparent movement of the sun means ....

a. the sun revolves around itself. b. the earth revolves around its axis.
c. The earth revolves around planets.

4. Sequence of day and night occurs due to the ....

a. rotation of the Earth around the sun b. rotation of the Earth around its axis
c. rotation of the Sun around its axis
d. all the previous answers

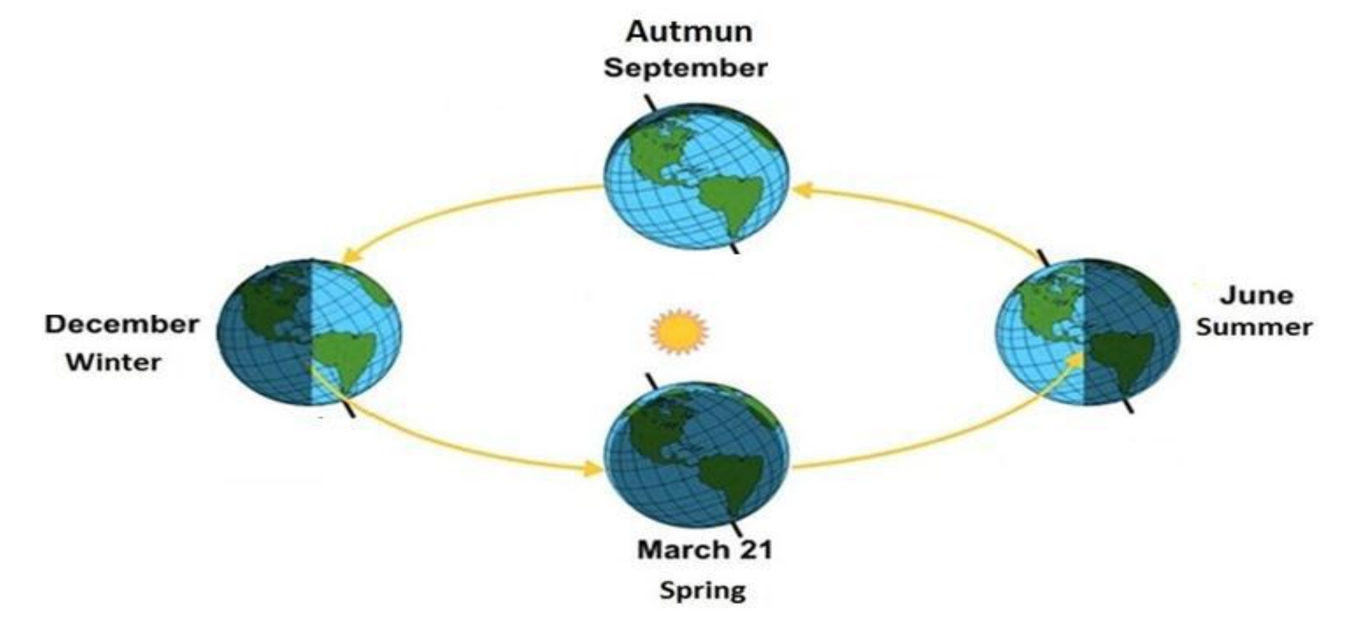
The rotation of the Earth around the Sun:

* The Earth revolves around the sun once each 365 $\frac{1}{4}$ day (a year).

الأرض تدور حول الشمس مرة كل 365 $\frac{1}{4}$ يوم (سنة)

* The rotation of the Earth around the Sun causes the sequence of four seasons (summer – spring – autumn – winter).

دوران الأرض حول الشمس يسبب تعاقب الفصول الأربعة (الصيف – الربيع – الخريف – الشتاء)



* The summer's day is longer than the winter's day.

النهار في فصل الصيف أطول من النهار في فصل الشتاء

* The spring's day equals the autumn's day.

النهار في فصل الربيع يساوي النهار في فصل الخريف

G.R. **The occurrence of the four seasons.**

Due to the rotation of the Earth around the Sun

G.R. **Day time in summer longer than in winter.**

Because the Earth orbit during summer is longer

بسبب أن المسار الذي يسلكه الأرض خلال فصل الصيف أطول

G.R. **The hours of day are not equal to the hours of night.**

because the axis of Earth is inclined. بسبب أن محور الأرض مائلًا

* Length of day = time of sunset – time of sunrise

عدد ساعات النهار = توقيت غروب الشمس – توقيت شروق الشمس

* Length of night=24 hours – length of day

عدد ساعات الليل = 24 ساعة – عدد ساعات النهار

1. Complete:

1. The day in the .... season is longer than in the .... season.
2. The hours of day are equal to the hours of night in the .... and .... seasons.
3. The Earth rotates around the sun once every ...., while it rotates around its axis once every ....
4. The sequence of the four seasons occurs due to ....
5. In the .... season, the day is longer than the night.
6. Summer season occurs in .... when the northern hemisphere is inclined away from the Sun.
7. The Earth's axis is inclined. This causing the difference between ....
8. The day is longer than night in ....
9. In the .... season, day is shorter than night.

2. Put (✓) or (✗):

1. The rotation of the Earth around the Sun leads to the sequence of the four seasons. (   )
2. The Earth rotates around the Sun every month. (   )
3. The Sun does not rotate around the Earth. (   )
4. The Earth rotates around its axis every day. (   )
5. The Earth rotates around the Sun every 300 days. (   )
6. The sun seems to be risen from the west. (   )
7. The day is nearly equal to night in summer and autumn season. (   )
8. Earth revolves around the sun in 365¼ days. (   )
9. The movement of shadow of any fixed object exposed to the sunlight is due to apparent movement of the sun. (   )
10. In winter and summer seasons, the day hours are equal to the night hours. (   )
11. The day in summer season is longer than night. (   )

3. Write the scientific term:

1. A season in which day is longer than night. (...........................)
2. A season in which day is shorter than night. (............................)
3. A phenomenon occurs when the Earth rotates around its axis. (.............)
4. Seasons in which hours of day are nearly equal to those of night. (..........)

4. Correct the underlined word:

1. Earth rotates around its self once every <u>28 days</u>. (..........................)
2. Day during summer season is <u>shorter</u> than day during winter season. (............................)
3. The length of day equals the length of night in <u>summer</u> and spring. (..................................)

5. Choose the correct answer:

1. Earth rotates around the sun once every.........................

a. 365 $\frac{1}{4}$ day b. 365 day c. 24 hours

2. Time of sunset – time of sunrise equals ....

a. length of day. b. length of night. c. length of year.

3. During the winter season..........

a. the day becomes longer than night. b. the day and night are equal.
C. the northern hemisphere of the earth is inclined away from the sun.

4. The inclination of earth's axis causes.................

a. sequence of day and night b. sequence of four seasons.
c. the hours of day are not equal to the hours of night.

5. The part of earth that faces the sun.........

a. doesn't get light. b. is at daytime. c. is at night.

6. The number of day hours is equal to the number of night hours in ....

a. summer b. winter c. spring d. all of the seasons

6. What happen when:

1. The Earth rotates around its axis

....

2. The Earth revolves around the sun once every year.

....

3. The Earth's axis becomes vertical.

....

4. The sun faces a part of the Earth.

....

7. Look at the following table which represents time of sunrise and time of sunset, then answer:

Day	Time of sunrise	Time of sunset
	Hour : Minute	Hour : Minute
first day	6 : 43	5 : 43
second day	5 : 44	7 : 44

1. Calculate the hours of daytime for each day.
2. Write the name of the suitable season for each day in the table.

